REMARKS

Review and reconsideration on the merits are requested.

Applicants respectfully request the Examiner to hold in abeyance the obviousness-type double patenting rejection over claims 1, 4-10, 12, 14-22 and 24-32 of copending application 09/956,925 and over claims 1-17 of copending application 09/957,030 until one of the three co-pending applications is allowed.

The typographical error in claim 1 has been corrected.

In response to the objection to claims 11 and 12 as not further limiting the subject matter of the claims from which they depend, claims 11 and 12 have been rewritten in independent form. Withdrawal of the objection is respectfully requested.

In response to the rejection under 35 U.S.C. § 112, first paragraph, Applicants note that the subject matter of claim 10 is described at page 14, lines 12-19 of the specification. Therefore, it is believed that no amendment of the specification is warranted, and withdrawal of the foregoing rejection is respectfully requested.

Claims 1-6 and 10 were rejected under 35 U.S.C.§ 102(b) as being anticipated by U.S. Patent 4,681,099 to Sato et al. Sato et al was cited as disclosing an oxygen enriching apparatus for supplying oxygen-enriched gas synchronously with inhalation, including means for supplying the oxygen-enriched gas at a first flow rate equal to or less than a continuous base flow rate when breath-synchronized operation is not performed (citing col. 6, lines 60 - col. 7, line 9 and Table 2 at col. 14); and means for supplying the oxygen-enriched gas at a second flow rate greater than the continuous base flow rate over an inhalation period having a length of 25 to 40% that of a

breathing cycle when breath-synchronized operation is performed (citing col. 11, line 49 - col. 12, line 12 and Figs. 7A, 7C).

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendments to the claims and the following remarks.

Regarding the first means clause of present claim 1, the cited passage bridging col. 6-7 concerns operation of adsorption cylinders 3 and 4 so as to accumulate oxygen-enriched gas, and does not disclose supplying oxygen-enriched gas at a flow rate equal to or less than a continuous base flow rate when breath-synchronized operation is not performed.

Regarding the second means clause of present claim 1, Sato et al describes that in the inhalation phase, the duration of the opening of the breath-synchronizing solenoid valve 24 is controlled by a combination of a time ratio set on the outside input means 55 and the average of the preceding six consecutive sound inhalation durations (col. 11, line 64 - col. 12, line 3). Oxygen enriched gas is supplied to the living body during each inhalation phase except for the specific end portion thereof. See col. 4, line 59-col. 5, line 8. Namely, as shown in Fig. 4B, oxygen-enriched gas is supplied over approximately 85% of an inhalation period.

In this regard, Sato et al discloses that interruption of the oxygen-enriched gas supply during the exhalation phase causes the storing of oxygen-enriched gas in a buffer tank. The elevated pressure facilitates the superposition of a pulse-like initial flow rate onto the steady state flow rate of the oxygen-enriched gas when the valve is open at the beginning of the inhalation phase (col. 5, lines 44-51). This is also shown in Fig. 7B (peak-like initial flow at the beginning of the inhalation phase which quickly decreases to a low, steady-state). That is, Sato et al does

not disclose supplying oxygen-enriched gas at a flow rate greater than the continuous base flow rate over the inhalation period as required by present claim 1. Namely, as shown in Fig. 7B of Sato et al (reproduced below), the flow rate during at least one-half of the inhalation phase is at a low, steady-state, and not a flow rate greater than the continuous base flow rate. For this reason alone, it is respectfully submitted that the present claims are not anticipated by Sato et al.

FIG. 7A

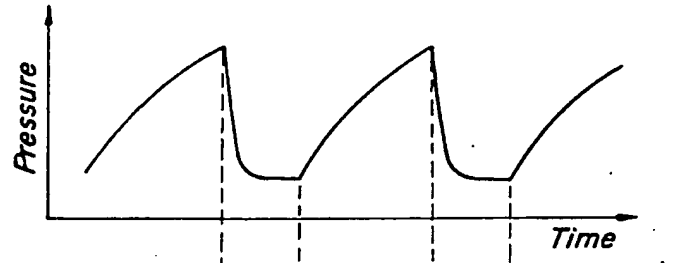


FIG. 7B

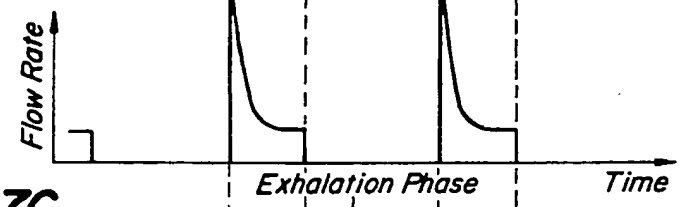
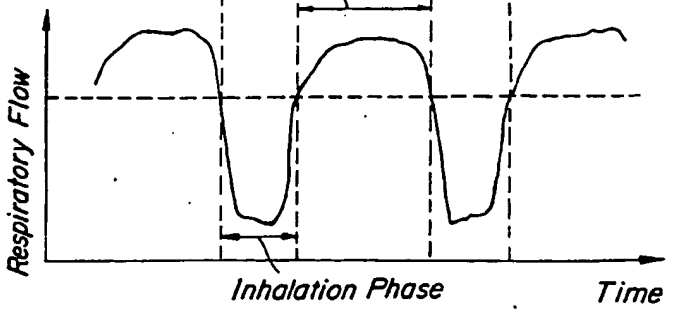


FIG. 7C



A characteristic feature of the present invention, not taught by Sato et al, is that the apparatus can supply oxygen-enriched gas at a flow rate higher than the continuous base flow rate when needed during the inhalation period. As a result, the apparatus can be made more compact. This is accomplished by a breath synchronization function in which the oxygen-enriched gas is not supplied or supplied to the user at a flow rate equal to or less than the continuous flow rate, and in which the oxygen-enriched gas is supplied at a second flow rate greater than the continuous base flow rate over the inhalation period. During the exhalation period, the oxygen-enriched gas produced by the nitrogen adsorption process is accumulated in one or more product tanks. Thus, during the inhalation period, the accumulated-enriched gas, in addition to the oxygen-enriched gas produced by the nitrogen adsorption process, is available for supply to the user at a flow rate greater than the continuous flow rate. That is, the oxygen-enriching apparatus can be light weight and have a small capacity (for example, a 2 to 3 liter model), while being capable of supplying oxygen-enriched gas at a higher flow rate when necessary (up to three (3) times the continuous flow rate capacity). In other words, if the oxygen-enriching apparatus has a capacity of 2 liter/min, theoretically, the oxygen-enriching apparatus can increase the flow rate up to 6 liters/min over an inhalation period having a length 25 to 40 % that of a breathing cycle. Such a supply of oxygen-enriched gas in accordance with the invention approximates that of a continuous flow-type to the extent possible such that the patient hardly feels that something is wrong. As a result, oxygen-enriching apparatus can maintain compactness, low electrical power consumption and low noise of a lower-rated model,

consumption and low noise of a lower-rated model, to thereby provide many advantages to both patient and caregivers (page 5, lines 16-21 of the specification).

To clarify this feature of the invention, claim 1 has been amended to recite means for supplying the oxygen-enriched gas at a first flow rate of up to 4 liters/min equal to or less than the continuous base flow rate when breath-synchronized operation is not performed, and means for supplying the oxygen-enriched gas at a second flow rate of 5 to 7 liters/min greater than the continuous base flow rate over the inhalation period. Support is found, for example, bridging pages 9-10 of the specification.

Sato et al does not disclose setting a first flow rate of up to 4 liters/min equal to or less than a continuous base flow rate when breath-synchronized operation is not performed relative to a second flow rate of 5 to 7 liters/min greater than the continuous base flow rate over the inhalation period. Particularly, Sato et al does not disclose criticality in setting the second flow rate relative to the continuous base flow rate such that the size of the oxygen-enriching apparatus is minimized. Sato et al is entirely silent with respect to this aspect of the invention.

For the above reasons, it is respectfully submitted that claims 1-6 and 10, as amended, are neither anticipated nor obvious over Sato et al, and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

Claims 11 and 12 were rejected under 35 U.S.C.§ 102(b) as being anticipated by Sato et al.

Claims 7-9 were rejected under 35 U.S.C.§ 103(a) as being unpatentable over Sato et al in view of U.S. Patent 6,237,594 to Davenport. The Examiner relied on Davenport as disclosing

an oxygen supply device having a number of tanks allowing for delivery of a broad range of flow without negatively impacting performance of the valves and sensors.

Claims 11 and 12 have been rewritten in independent form to include all of the limitations of claim 1. With respect to the rejection of both claims 11 and 12 and claims 7-9 depending primarily or secondarily from claim 1, Applicants rely on the response above with respect to the rejection of claim 1 over Sato et al alone.

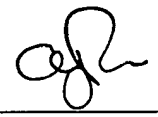
Entry of the amendments is respectfully requested as placing this case in condition for allowance.

Withdrawal of all rejections and allowance of claims 1 and 3-12 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Abraham J. Rosner
Registration No. 33,276

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: May 19, 2004